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ABSTRACT

This booklet presents guidelines and procedures to facilitate the development and writing of performance objectives at different levels of specificity. Chapter 1 contains a brief review of performance objectives. Chapter 2 reviews behavioral variables under the three headings of cognitive variables, affective variables, and psychomotor variables. Chapter 3 deals with critiquing performance objectives. Chapter 4 describes the development of a program structure. Chapter 5 deals with performance objective elements at different levels of specificity. Appendixes include descriptions of instructional and institutional variables, answers to test items in chapters 1, 2, 3 and 5, and practice forms. (MBM)

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Hierarchy for Goals and Objectives

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PREFACE

This booklet presents guidelines and procedures to facilitate the development and writing of performance objectives at different levels of specificity. The rapidly emerging emphasis on the concept of "accountability" demands of the professional at any given level within any organization, agency, institution, system or project skills to operationalize the goals of the training or educational program. A system of specifying the intended behavioral outcome of those affected by the program must be designed in order to provide internal consistency in its communication and still facilitate information collection, analysis, and interpretation at all levels of the structure represented.

The technique for developing and writing performance objectives for the hierarchy presented in this booklet was developed by the staff of EPIC Diversified Systems Corporation (Tucson, Arizona) and is presented in two different training booklets of their evaluation skills series:[1]

Booklet #2 — Developing and Writing Behavioral Objectives

Booklet #7 — Performance and Process Objectives

This booklet would be utilized most effectively after having completed the reading and exercises in Booklets #2 and #7. However, review materials and exercises are included in this booklet.

[1]Educational Innovators Press, P. O. Box 13052, Tucson, Arizona 85711.

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Chapter I

REVIEW OF PERFORMANCE OBJECTIVES[2,3]

In order to evaluate the effectiveness of training and instructional programs, two important components need to be given consideration: (1) the procedures for specifying the desired learner behavioral change, and (2) a description of the program that is to be implemented in order to bring about the accomplishment of the specified objectives.

Although many approaches have been developed for the purpose of specifying procedures to write performance objectives, in general, the approaches all tend to focus on: (1) methods for specifying a desired behavioral change on the part of the learner, and (2) how the change will be measured.

Over a period of years (since 1967), the EPIC Diversified Systems Corporation staff formulated procedures for developing and writing performance objectives which involve the answering of six questions:

1. *WHO* is the person in the institutional dimension of which the behavior is expected?
2. What *BEHAVIOR* is desired?

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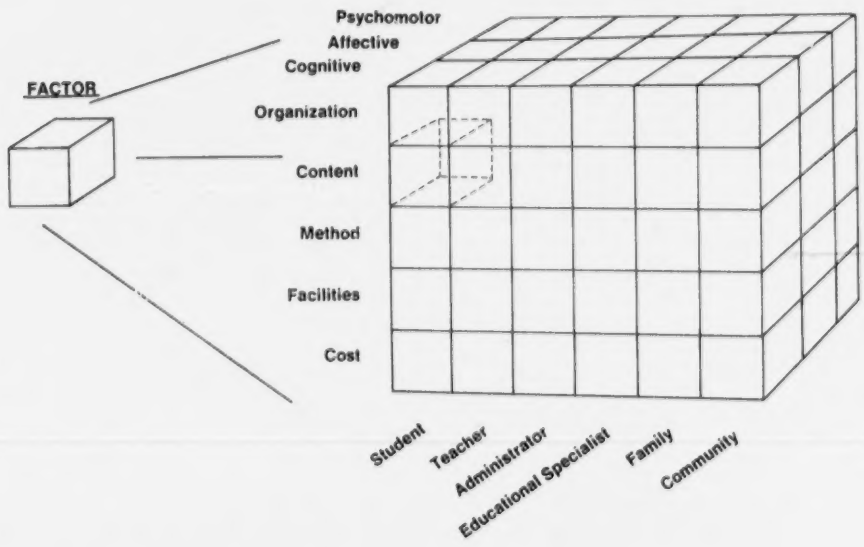
[2]*Developing and Writing Behavioral Objectives.* Tucson, Arizona: Educational Innovators Press, Inc., 1970.

[3]*Performance and Process Objectives.* Tucson, Arizona: Educational Innovators Press, Inc., 1970.

3. *WHAT* instructional variable will the person's behavior be related to?
4. How will the behavior be specifically *MEASURED?*
5. What amount of *TIME* or *NECESSARY PREREQUISITE* is needed to bring about the desired behavior?
6. *PROFICIENCY LEVEL* expected.

Each question must be satisfied in the stating of a performance objective in order to communicate completely the expected outcome. Step-by-step procedures in developing the performance objective are first accomplished through the utilization of the EPIC Organizational Structure of Variables Affecting Educational Programs.

The Organizational Structure of Variables Affecting Educational Programs (Figure 1) provides the framework which describes those variables that affect a given program. A variable selected from each dimension interacts to form a factor.



*EPIC Organizational Structure, EPIC Evaluation Center, Tucson, Arizona.

Once a variable from each dimension is identified, three of the six elements of the performance objective have been satisfied. Figure 1 displays that the variables of student, cognitive, and content have been selected as the three initial elements for consideration in developing a performance objective and evaluating the effect of the given program.

The next steps are those of identifying when the behavior is expected (time) or the necessary prerequisites, the proficiency level (level of significance, months gain, grade placement scores, percentages, stanine score, etc.), and the method to be used in measurement (observation, standardized test, teacher-constructed test, etc.)

Thus, six elements are utilized in the writing of a performance objective.

1. Institutional Variable
2. Behavioral Variable
3. Instructional Variable
4. Measurement
5. Time (or Prerequisites Required)
6. Proficiency Level

TEST 1

The following exercise is intended to test your memory of the behavioral variables, instructional variables, and institutional variables of the Organizational Structure.

A. Dimensions and Variables

DIRECTIONS: Match the dimensions with the variable by placing the correct letter in the space provided.

Variables	Dimensions
..... 1. Cognitive	A. Institutional
..... 2. Student	B. Instructional
..... 3. Community	C. Behavioral
..... 4. Facility	
..... 5. Affective	
..... 6. Teacher	
..... 7. Content	
..... 8. Organization	
..... 9. Administrator	
.....10. Family	
.....11. Cost	
.....12. Method	
.....13. Psychomotor	
.....14. Specialist	

B. Elements of Performance Objectives

DIRECTIONS: List the six elements of the Performance Objective. (No specific order necessary.)

1.....

2.....

3.....

4.....

5.....

6.....

Chapter II

REVIEW OF BEHAVIORAL VARIABLES[4]

Chapter II will focus in greater depth on the definitions utilized to describe behavioral outcomes intended in the statement of objectives. The efforts of Bloom,[5] Krathwohl,[6] and Dave[7] are recommended for in-depth study and reference. The definitions and their use in this booklet may not carry the exact interpretation as intended by the authors cited.

For the purpose of writing and measuring behavioral outcomes in objectives, three variables of behavior are described:

1. COGNITIVE VARIABLE — Behaviors which place primary emphasis on the mental or intellectual processes of the learner. The levels are: knowledge, comprehension, application, analysis, synthesis, and evaluation.

2. AFFECTIVE VARIABLE — Behaviors which primarily emphasize attitudes, emotions, and values of the learner and are

[4] *Developing and Writing Behavioral Objectives.* Tucson, Arizona: Educational Innovators Press, Inc., 1970.

[5] Benjamin S. Bloom, *et al. Taxonomy of Educational Objectives, Handbook I: Cognitive Domain.* New York: David McKay Company, Inc., 1956.

[6] David R. Krathwohl, *et al. Taxonomy of Educational Objectives, Handbook II: Affective Domain.* New York: David McKay Company, Inc., 1956.

[7] Dr. R. H. Dave, National Institute of Education, NIE Building, Nehrauli Road, New Delhi, India.

usually reflected by interests, appreciations, and adjustments. This is a more nebulous area than the Cognitive Variable, but equally important. The levels are: receive, respond, value, organization, and characterization.

3. PSYCHOMOTOR VARIABLE — Behaviors which place primary emphasis on neuromuscular or physical skills, involving various degrees of physical dexterity. The levels are: imitation, manipulation, precision, articulation, and naturalization.

LEVELS OF THE COGNITIVE VARIABLE

Levels of the Cognitive Variable emphasizing mental processes begin with the concrete behavior of knowledge and continue through the more abstract levels of analysis and synthesis. These levels are defined as:

1. KNOWLEDGE — Involves the recognition and recall of facts (i.e., defining terms, recalling names, dates, persons, identifying words, etc.).

2. COMPREHENSION — The learner interprets, translates, summarizes, or paraphrases given material. The person can organize the material into another language or form of communication (i.e., reading a book or musical scores, grasping the thought of

	material studied, ability to describe something in one's own words, etc.).
3. APPLICATION	Involves the use of material in a situation which is different from that situation in which it was originally learned (i.e., the use of abstract ideas, principles, or theories in problem-solving).
4. ANALYSIS	Involves separating a complex entity into its parts, drawing comparisons and relationships between the elements (i.e., ability to recognize assumptions, to distinguish cause and effect relationships, reorganization of biases or points of view, etc.).
5. SYNTHESIS	Involves combining elements to form a new original entity. It involves a process of working with pieces, parts, elements, etc., and arranging them in a structure that was not clearly evidenced before (i.e., ability to produce a play, music, art forms, design products, or formulate solutions).
6. EVALUATION	Involves acts of decision-making, judging, or selecting based on a given set of criteria. These criteria may be objective or subjective (i.e., ability to indicate fallacies, compare a work or an idea with known standards, etc.).

LEVELS OF THE AFFECTIVE VARIABLE

Affective behaviors are generally identified as the interest, attitudes, values, appreciations, and adjustments of the individual. The affective behaviors, emphasizing the emotional processes, begin with the simple behaviors of receiving and responding, and continue through the complex process of characterization. The levels of affective behavior are defined as:

1. RECEIVE	The learner is aware of, or passively attending to, certain phenomena and stimuli (i.e., listening, being attentive to, etc.).
2. RESPOND	The learner complies to given expectations by attending or reacting to certain stimuli or phenomena (i.e., obeys or participates as expected, etc.).
3. VALUE	The learner displays behavior consistent with a single belief or attitude in situations where he is not forced to comply or obey (i.e., demonstrates a definite preference, displays a high degree of certainty and conviction, etc.).
4. ORGANIZATION*	The learner is committed to a set of values as he displays or communicates his beliefs or values (i.e., develops a rationale for a set of values, makes judgments about sets of values).

5.	CHARACTERIZATION*	The total behavior of the learner is consistent with the values he has internalized (i.e., develops a consistent philosophy of life, exhibits respect for the worth and dignity of human beings, etc.).

*Levels 4 and 5 are seldom used in behavioral objectives at the instructional level. Therefore, the educator may find these levels inappropriate for use in writing behavioral objectives to be achieved over short time periods.

PSYCHOMOTOR LEVELS*

The levels of the Psychomotor Variable of behavior are based on the concept of coordination. These behaviors include muscular action and require neuro-muscular coordination. The levels are defined as:

1. IMITATION — When the learner is exposed to an observable action, he begins to make covert imitation of that action. Such covert behavior appears to be the starting point in the growth of psychomotor skill. This is then followed by overt performance of an act and capacity to repeat it. The performance, however, lacks neuro-muscular coordination or control, and hence is generally in a crude and imperfect form (i.e., impulse, overt repetition).

2. MANIPULATION — Emphasizes the development of skill in following directions, performing of selected actions, and fixation of performance through necessary practice. At this level, the learner is capable of performing an act according to instruction rather than just on the basis of observation as in the case at the level of imitation (i.e., following directions).

3. PRECISION — The proficiency of performance reaches a higher level of refinement in repro-

*By Dr. R. H. Dave, Head of Department of Curriculum and Evaluation, National Institute of Education, NIE Building, Nehrauli Road, New Delhi 16, India.

ducing a given act. Here, accuracy, proportion, and exactness in performance become significant (i.e., reproduction, control, errors reduced to a minimum).

4. ARTICULATION — Emphasizes the coordination of a series of acts by establishing appropriate sequence and accomplishing harmony or internal consistency among different acts (i.e., performance involves accuracy and control plus elements of speed and time).

5. NATURALIZATION — A high level of proficiency in the skill of performance of a single act is required. The behavior is performed with the least expenditure of psychic energy. The act is routinized to such an extent that it results in automatic and spontaneous response (i.e., performance becomes natural and smooth).

TEST 2

DIRECTIONS: Match the following brief definitions with the correct behavior.

A Cognitive Levels

..... 1. Knowledge	A. Recalling information from memory (specific facts, definitions, forms, etc.).
..... 2. Comprehension	B. Using information in a new situation.
..... 3. Application	C. Forming of a new whole by
..... 4. Analysis	
..... 5. Synthesis	
..... 6. Evaluation	

putting together the parts (developing a new idea).

D. Interpreting, translating, or extrapolating information.

E. Judging or selecting by using external criteria and standards or internal evidence.

F. Relating or comparing information.

B **Affective Levels**

..... 7. Receive
..... 8. Respond
..... 9. Value
.....10. Organization
.....11. Characterization

G. Total behavior consistent with beliefs (a philosophy of life).

H. Compliance, willingness, or satisfaction expressed.

I. To be aware of.

J. Definite preference. Sufficiently consistent to take on characteristics of a belief or attitude.

K. Development of a value system.

C **Psychomotor Levels**

.....12. Imitation
.....13. Manipulation
.....14. Precision
.....15. Articulation
.....16. Naturalization

L. Skill in following directions.

M. Involves elements of time and speed—plus accuracy and control.

N. Automatic and spontaneous natural smooth response.

O. Crude and imperfect repetition or control.

P. Accuracy, proportion and exactness of performance.

Chapter III

CRITIQUING PERFORMANCE OBJECTIVES

The purpose of the following exercise is to identify the necessary parts of a stated objective, if any, that are missing. The elements of the performance objective are as follows:

1. Institutional Variable
2. Behavioral Variable
3. Instructional Variable
4. Method of Measurement
5. Time or Prerequisites Required
6. Proficiency Level

DIRECTIONS: In completing the critiquing of the objectives, it would be most helpful to use the following steps. (Use the above key for identifying the missing elements.)

First — read the total statement.

Underline each element of the six listed above that are included in the statement.

Place the number of each element that is missing in each statement on the provided blank.

If the statement includes all six elements of a performance objective, write O.K. on the blank.

EXAMPLE 1

2-5-6 Third Grade[1] Students will achieve Reading[3] as measured by the Comprehensive Test of Basic Skills[4], Form Q, Level 1.

NOTE: Elements missing are: Behavioral Variable, Time Required, and Proficiency Level.

TEST 3

Now complete the following ten items in Test 3. Answers are found in Appendix B, Page 60.

..... 1. An understanding of economic skills will be developed.

..... 2. Students will comprehend the main political party platforms presented in American Government as indicated by their scores on a teacher-made test.

..... 3. At the end of the first semester, tenth grade students will display their appreciation of the individual programmed materials as measured by teacher observation.

..... 4. Pupils in a first grade program will demonstrate an increased willingness to respond to music instruction as measured by selected overt behaviors observed and reported by the music teacher.

..... 5. Sixth grade students will demonstrate a statistically significant gain in the application of solving mathematical word problems as measured by the California Test of Basic Skills.

6. When given a free activity period each day, second grade pupils will voluntarily select a book to read a minimum of two out of every five periods per week during the nine months of the school year.

7. At the end of the sixth grade, students in the California public schools will demonstrate comprehension of reading at grade equivalency on test norms when measured by the C.T.B.S. (subtest 2).

8. Students will exhibit a significant increase (5% level) in knowledge of selected reading vocabulary words as measured by pre- and post-scores on the Metropolitan Achievement Test (subtest 1).

9. At the end of the lesson, the seventh grade science students will be able to answer eight of the ten questions correctly concerning the condensation process as measured by a teacher-constructed multiple-choice test.

10. At the conclusion of the in-service program, the teacher participants will display their knowledge of individualized teaching techniques as measured by the EPIC Test of Individualized Instruction.

Chapter IV

DEVELOPING A PROGRAM STRUCTURE

The design of an appropriate program structure in a practical sense facilitates the identification of levels within any given educational system or organization for which to develop goals and performance objectives. Although the number of levels and their classifications or names may vary widely from setting to setting, the restrictions placed upon the number of objectives (levels of specificity) that can be developed will be dependent upon the availability of a system to specify the important elements of objectives at each level.

A hierarchical system of performance objectives should enable the educator, regardless of area of responsibility or position, to state in performance terms the performance expected from the learners (or individual learner). The following questions may help to identify the need for performance objectives:

1. What information must funding agencies have to make intelligent decisions about funding priorities?

2. How does a superintendent of schools report student progress to the local board of education?

3. What feedback data are essential to the project director to effectively recycle a program?

4. What information must the classroom teacher have to assure student success at the next step in the educational unit or skill area?

5. How does the specialist identify, describe, and state the desired outcomes of services provided?

Program levels identified must be closely related to the goals and objectives of the organization, agency, or institution. However, for the most part in education, program structures have not been effectively utilized as output categories. Cleland and King[5] stated that program structures should be defined more in terms of what the organization is trying to achieve rather than in terms of resources. They reported the guidelines used by the Bureau of the Budget for output categories:

(1) *Program Categories* — Grouping of Programs or activities which represent the broad objective or mission of the organization, agency, or institution.

(2) *Program Subcategories* — Subdivisions established with each category with more specific objectives.

[5]David I. Cleland and William R. King. *Systems Analysis and Project Management*. New York: McGraw-Hill Book Co., 1968.

(3) *Program Elements* — Subdivisions of program subcategories and comprise very specific objectives and products.

The following two charts (pages 24 and 25) illustrate the typical program structures at the elementary and secondary school levels. The three output categories mentioned above relate very closely to the Curriculum Level (Program Category), Course Program, and Project Level (Program Subcategories), and Instructional Level (Program Elements).

Other levels specified in the Program Structures presented lend themselves to the stating of educational philosophy and broadly-stated goals. Definable behaviors and appropriate instructional variables are not of practical concern before reaching the Curriculum Level.

Also apparent in the comparison of the elementary and secondary program structures is the inconsistency at the Course, Program, and Project Level. This inconsistency exists in that course grouping at the secondary level more closely resembles skill areas or units of study within a course area in the elementary school. This problem may be handled in developing a program structure by determining appropriate subcategories at the Course, Program, and Project Levels.

In developing the program structure to be utilized in writing objectives at various levels of specificity for evaluation feedback, two major concerns should be recognized:

(1) Do not develop a program structure that is only functional administratively, and

(2) Do not develop a program structure that is constructed solely around existing or planned positions and titles.

Charts 1, 2, and 3 display typical program structures for the elementary and secondary school levels. These structures are presently being used in developing and implementing PPBS (Planning, Programming, Budgeting Systems). At level two, there is a distinct branch into areas of support services and the area of instruction. This booklet will be devoted most specifically to the instructional area.

CHART I

PROGRAM STRUCTURE LEVELS

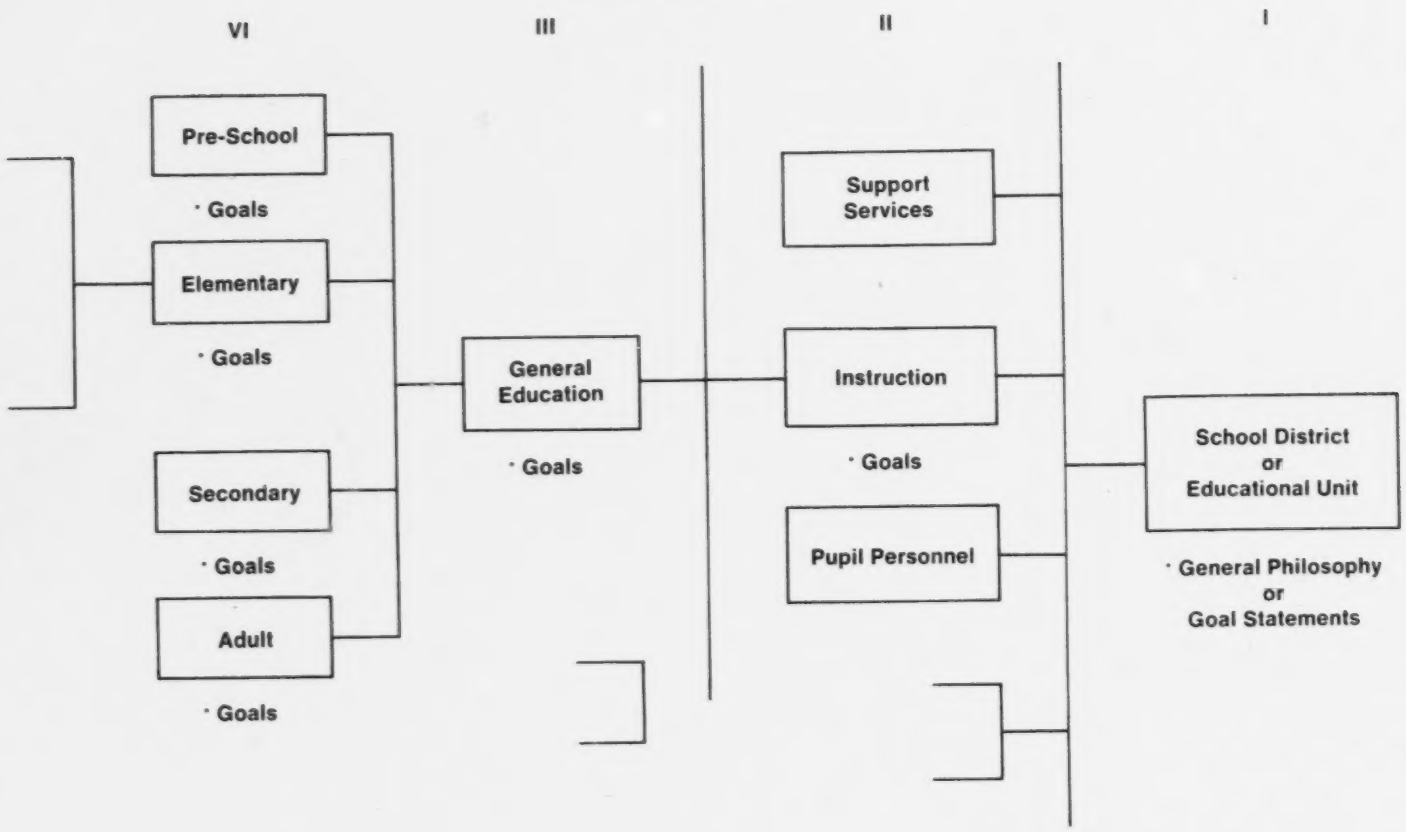


CHART 2 — SCHOOL DISTRICT PROGRAM STRUCTURE (Elementary School Example)

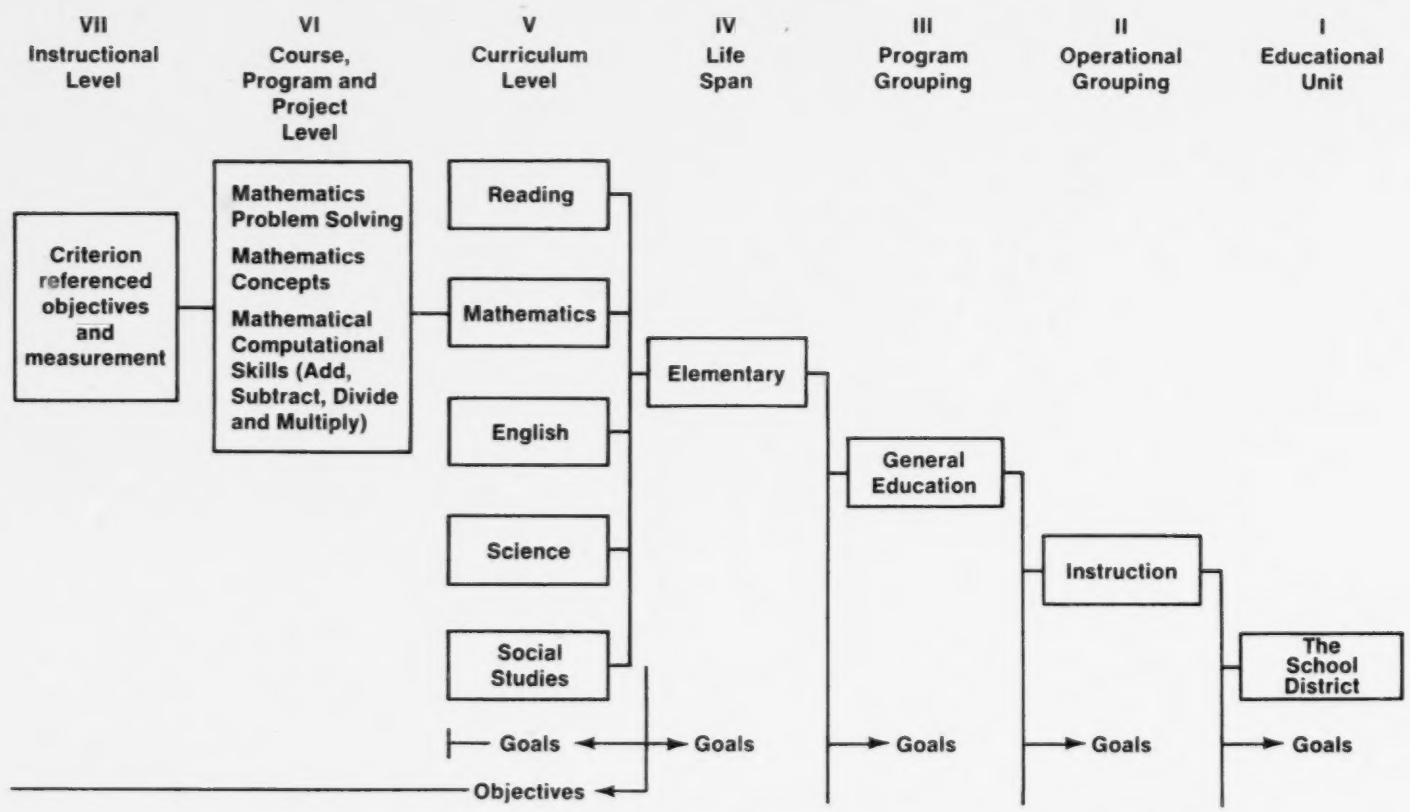
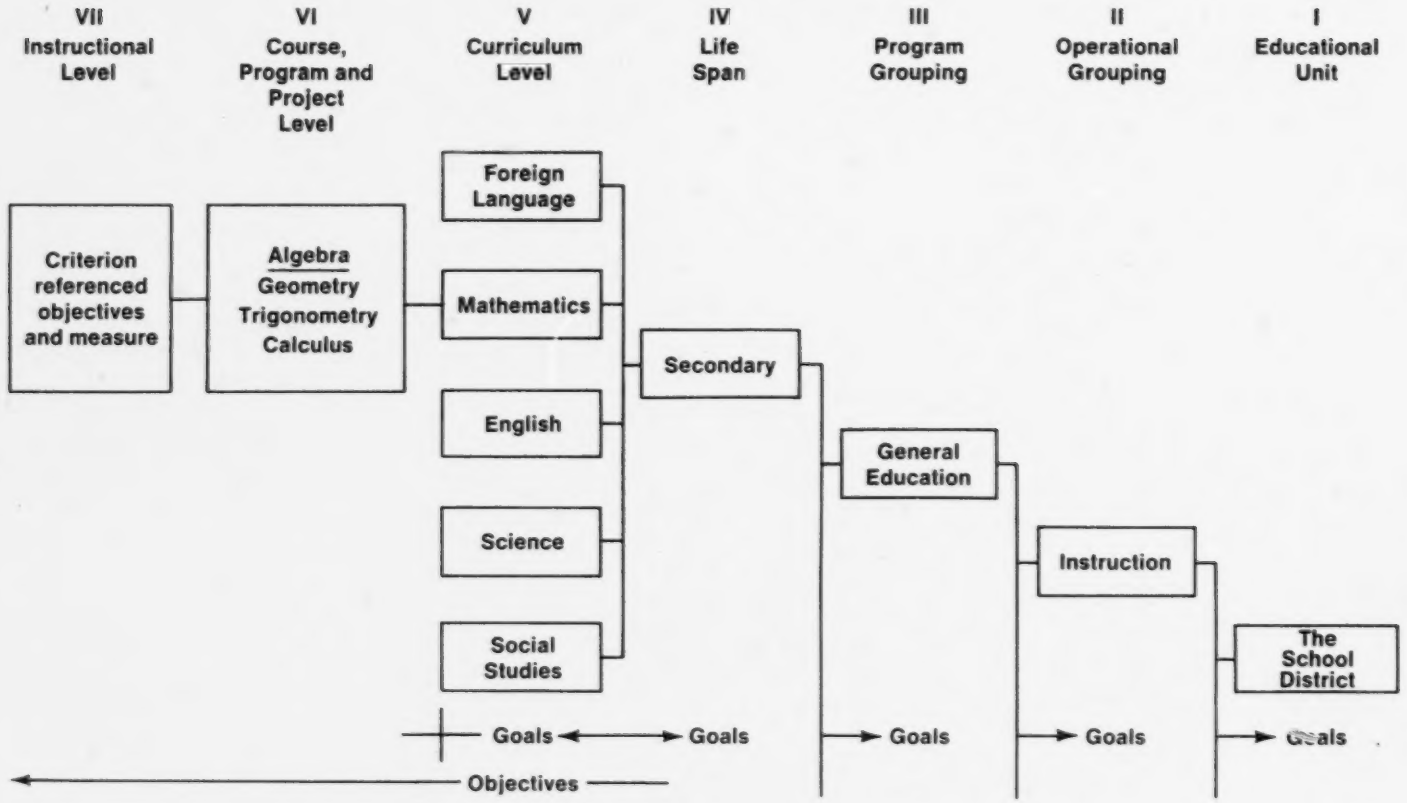


CHART 3 — SCHOOL DISTRICT PROGRAM STRUCTURE (Secondary School Example)



Chapter V

PERFORMANCE OBJECTIVE ELEMENTS AT DIFFERENT LEVELS OF SPECIFICITY

The EPIC System for writing performance objectives includes six elements (Institutional Variable, Behavioral Variable, Instructional Variable, Method of Measurement, Time, and Proficiency Level). As the performance objective is developed at different levels of specificity, the elements of the objective change. This does not imply that all six elements must necessarily change as the objective becomes more or less specific.

Examples of extremes in specificity may be simply displayed as follows:

1. **Institutional Variable**

Total Identified Population ⟷ Individual Student

2. **Behavioral Variable**

Cognitive Skills ⟷ Knowledge of Terminology (One Word)

3. **Instructional Variable**

Broad Curriculum Areas (Mathematics) (2 + 2) ⟷ Single fact or bit of knowledge (2 + 2)

4. **Measurement**

Test Procedures Sampling a wide, broad discipline area and all levels of behavior (Reading achievement)	⟷	Single question (written or verbal) criterion referenced

5. **Time**

At the end of a sequence of educational experiences or activities (Life span, grade levels, etc.)	⟷	At the end of a single instructional event

6. **Proficiency Level**

Accomplishment of the total group (average performance)	⟷	Success in one individual task or question in one try

Three levels of specificity seem to be most practical for the development, writing, and evaluation of performance objectives. Specific names assigned to each level serve only as a communication tool and have been selected arbitrarily.

The following descriptions summarize the characteristics of objectives that could be developed at the three levels of specificity presented:

Curriculum Level — Terminal behaviors are expected to occur over longer periods of time (months or years) or at the conclusion of a series of educational experiences or activities. Measurement (whether selected standardized or self-constructed) is concerned with all levels of cognitive, affective, or psychomotor behavior and is not intended to make a distinction in the analysis of results relative to specific levels of behavior. Courses and related content or any of the instructional variables are dealt with in their

broader context. Proficiency levels established usually relate to the group average or mean results.

Course, Program, or Project Level — Terminal behaviors may be the same as objectives stated at the Curriculum Level; however, for evaluation purposes, the time factors may relate to a specific course, unit of instruction, or training activities. Behaviors are identified as most representative of a given cognitive, affective, or psychomotor level and represent the accumulation of many instructional objectives. Clusters of items from either standardized or non-standardized tests are selected to fit the behavior description (knowledge, comprehension, application, etc.) and the content breakdown or skill area of concern. If a test is used which samples all levels of behavior, an item analysis procedure is necessary, or a criterion (75%, etc.) for accepting the number of representative items must be established. Proficiency levels could be the same as at the Curriculum Level; however, caution must be taken when using proficiency levels provided by standardized tests and item analysis procedures are used, as the value of making comparisons is lost.

Instructional Level — Representative of the day-to-day sequence of learner outcomes that are stressed in the classroom or learning activity. At this level, criterion-referenced objectives and measurement are developed. Levels of cognitive, affective, and psychomotor behavior are identified as skills to be mastered before moving on to the next instructional activity or experience. Proficiency levels relate to percentages, raw score, etc., and even to the dichotomy of success or failure according to a set of standards or criteria. Answers may become one of only right or wrong, or the student "can do it" or he "cannot do it."

Elements of Performance Objective	LEVELS OF SPECIFICITY		
	Curriculum Level	Course, Program, & Project Level	Instructional Level
1. INSTITUTIONAL VARIABLE	Identify learners as a total group by grade level, age, classification or title participants, or some other general descriptive category.	Identify learners as a total group by grade level, age, classification or title participants, or some other general descriptive category. Emphasis on total group.	Identify the learners as individuals in the objective (such as each student), and even specify each student by name if so desired. Learners may be identified as a group but emphasis is on individual accomplishment.
2. BEHAVIORAL VARIABLE	Use of Behavioral Variables only: *Cognitive* *Affective* *Psychomotor*	Use of one of the levels of each Behavioral Variable in the Objective: *Cognitive*: (Knowledge, comprehension, application, etc.). *Affective*: (Receive, respond, value, etc.). *Psychomotor*: (Imitation, manipulation, etc.).	*Use of the levels of each Behavioral Variable in the Objective: *Cognitive*: (Knowledge, comprehension, application, etc.). *Affective*: (Receive, respond, value, etc.). *Psychomotor*: (Imitation, manipulation, etc.).
3. INSTRUCTIONAL VARIABLE	Describe Instructional Variables in terms of general area and subject classifications: • Mathematics • Observation of Interaction Patterns • Reading	Describe Instructional Variables in terms of acceptable sub-classification skill areas, units of study, or course designations: • Computational Skills • Observation of Cognitive Category • Vocabulary	Describe Instructional Variables as very specific skills or behaviors expected in day-to-day instruction or from a single instructional activity: • Multiplication Facts (10x10) • Skill in Specific Level of Cognitive Questioning • Single Vocabulary Word

*At the Instructional Level, consideration may be given to writing performance objectives utilizing the sub-categories of each Behavioral Variable (Knowledge of Specifics, Knowledge of Terminology, Analysis of Relationships, etc.).

Elements of Performance Objective	LEVELS OF SPECIFICITY		
	Curriculum Level	Course, Program, & Project Level	Instructional Level
4. MEASUREMENT	Selection of a total standardized test battery using the instructional variable specified (Math, Reading, Science, etc.). Non-standardized or self-constructed tests should have items representing more than one level of behavior and sample a variety of material with a given instructional variable.	Selection of appropriate subtests of a given standardized test that is compatible with behavior level or conduct an item analysis. Construction of tests to measure specific levels of behavior or item analysis of self-made tests.	Selection of specific criterion referenced items. (Measurement of each specific behavior.) Test item must be at the same level as stated in the objective.
5. TIME	Denote time as being over long period of treatment or instruction (months or years) or at the end of a given time frame (end of semester or grade).	Denote time as the terminal point of a given grade, course program, project or unit of study. Time frame could be the same as at the Curriculum Level.	Denote time as a unit within a given sequence of learner activities or the termination of a single instructional session or events (end of a period, day, week, lesson, etc.).
6. PROFICIENCY LEVEL	Determine Proficiency Level that would permit the identification of group accomplishment (average of the group, etc.). Percentages Grade Equivalents Raw Scores Gain Stanines Percentiles Etc.	Determine Proficiency Levels that would permit the identification of group accomplishment (average of the group, etc.). Percentages Grade Equivalents Raw Scores Gain Stanines Percentiles Etc.	Determine Proficiency Levels that would relate to the individual's readiness to move on to the next or more advanced skill level. Percentages Raw Scores Running or Continuous Successes Etc.

As the objectives are developed in the sequence from the Curriculum Level through the Instructional Level, not only may each element become more specific (or change), but it is logical to expect a greater number of objectives. This breakdown is presented in Figure 2.

The remainder of this chapter presents example performance objectives (Cognitive, Affective, and Psychomotor Behavior) at the three levels of the program structure where evaluation is emphasized. In reading each example, check each element of the objective for conformity to the previously-defined characteristics.

Figure 2
HIERARCHY OF PERFORMANCE OBJECTIVES

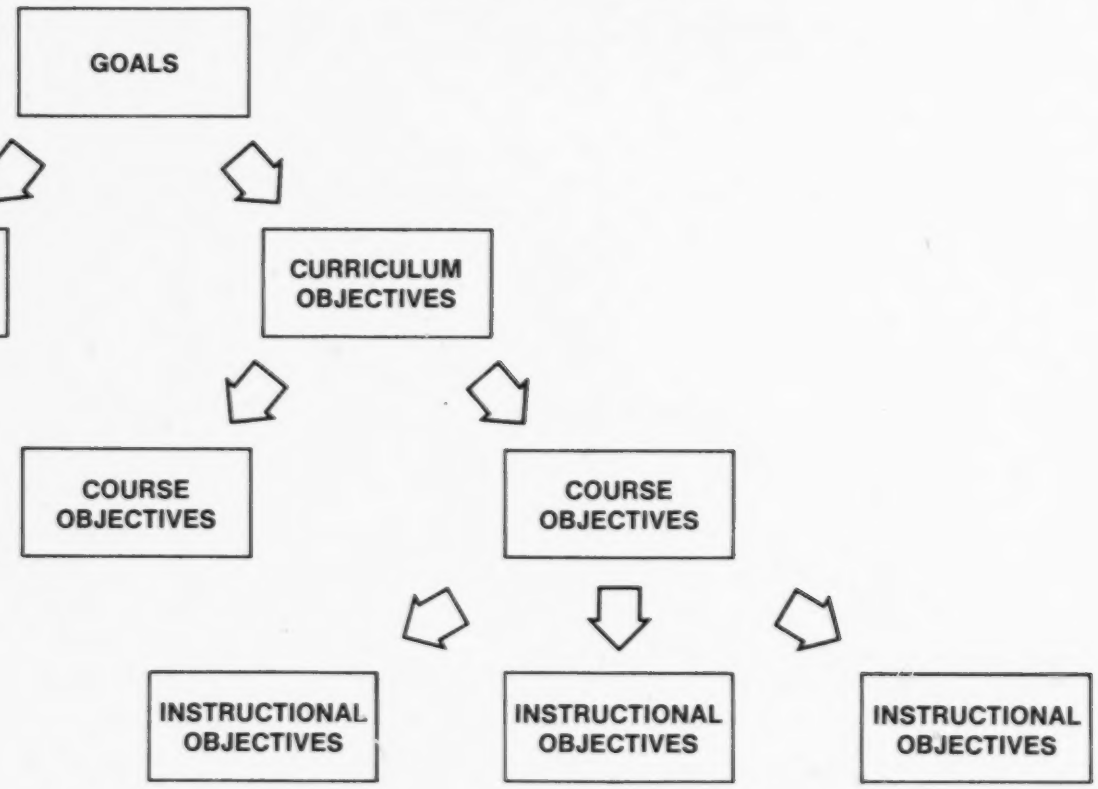


CHART 6 – HIERARCHY OF PERFORMANCE OBJECTIVES (Elementary)

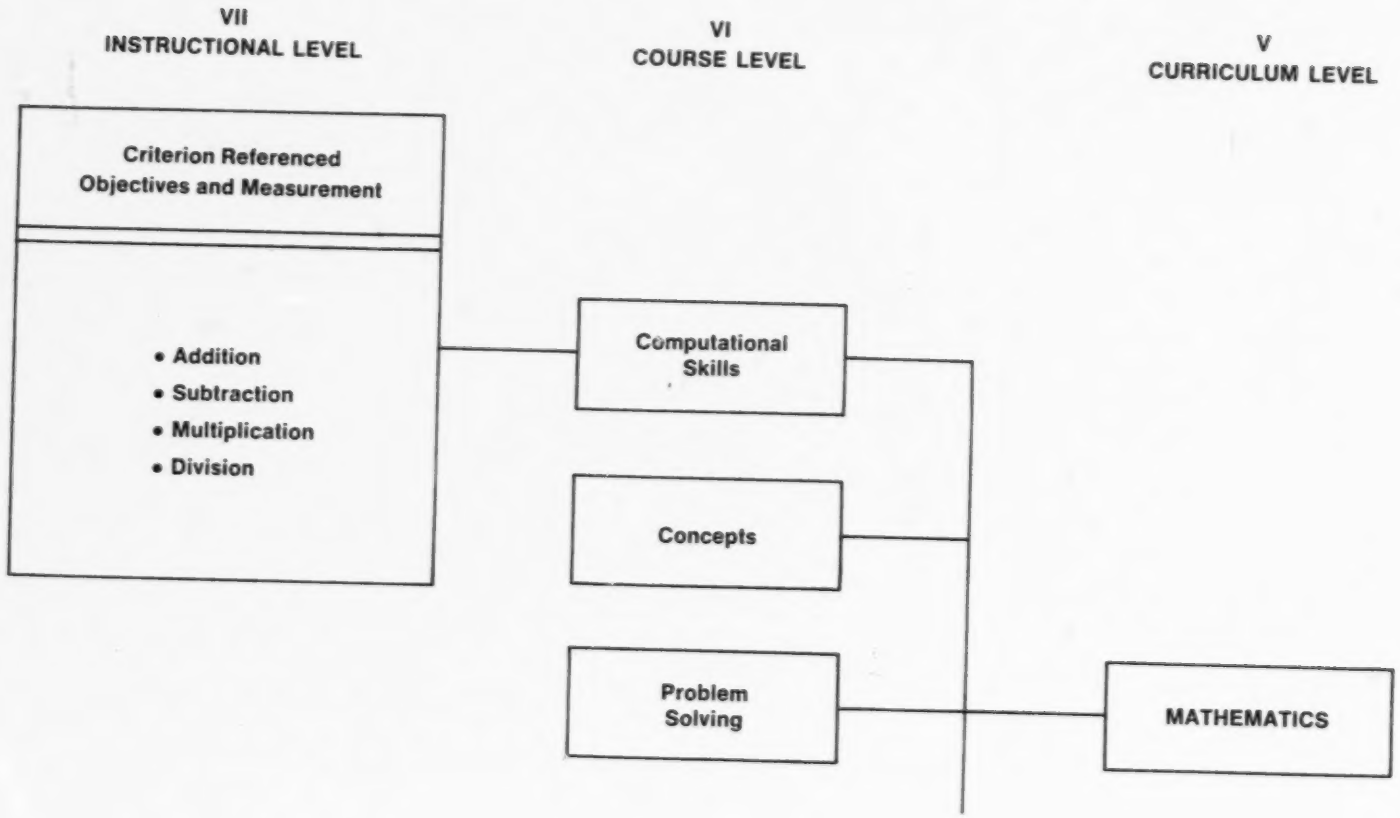


CHART 7 — HIERARCHY OF PERFORMANCE OBJECTIVES (Elementary)

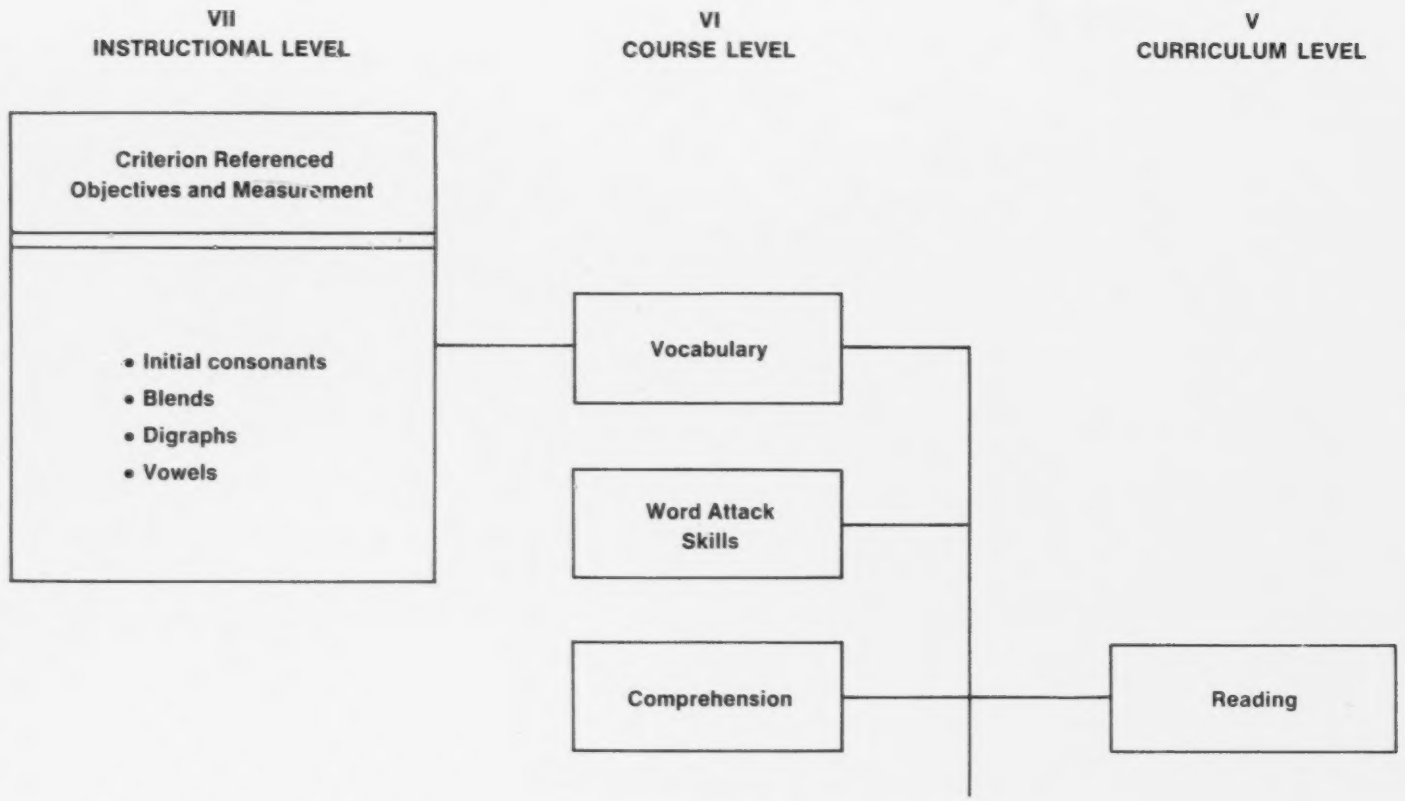


CHART 8 – HIERARCHY OF PERFORMANCE OBJECTIVES (Secondary)

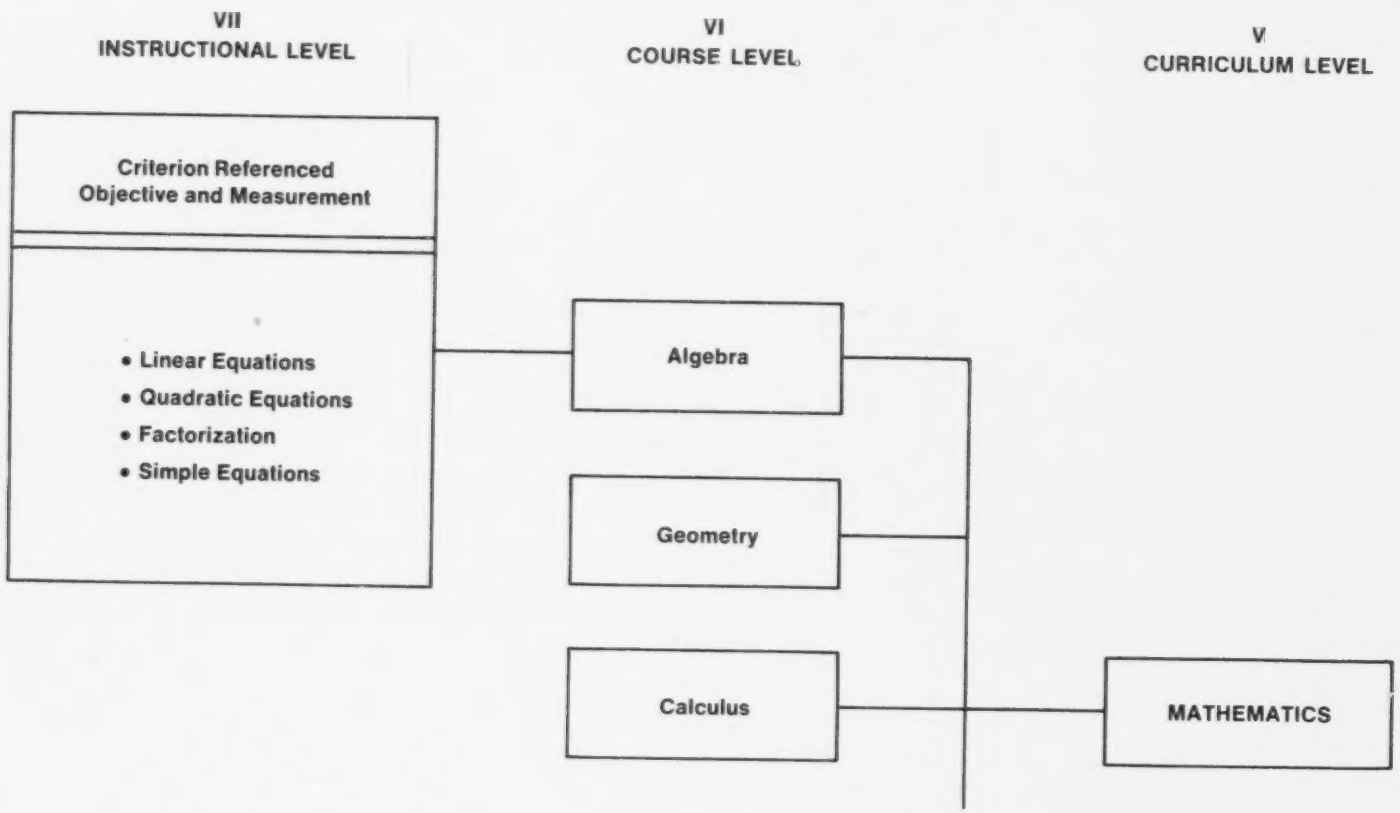
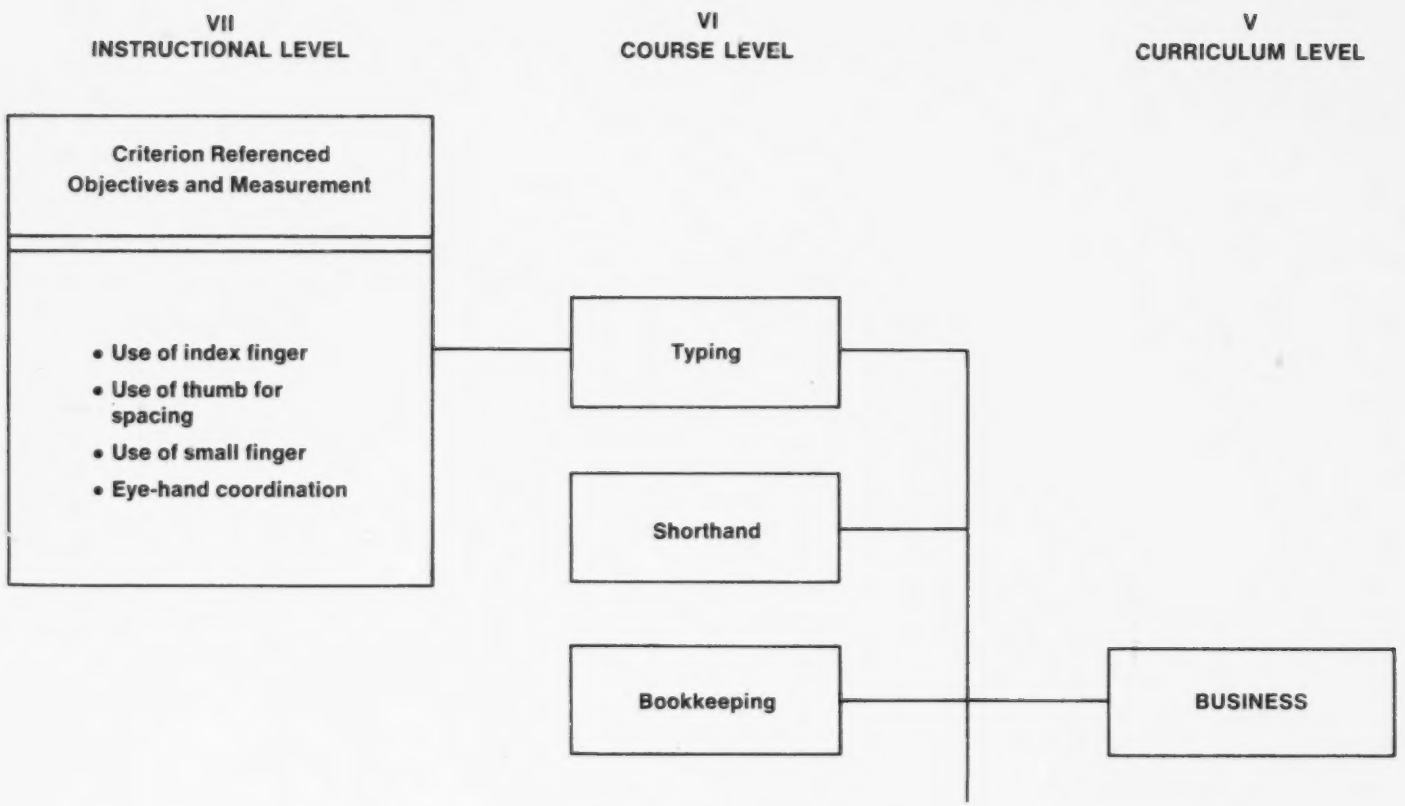


CHART 9 — HIERARCHY OF PERFORMANCE OBJECTIVES (Secondary)



WRITING PERFORMANCE OBJECTIVES
COGNITIVE
Curriculum Level
Mathematics

TIME — Upon completion of the school year,

INSTITUTIONAL VARIABLE — the third grade students will,

PROFICIENCY LEVEL — on the average, demonstrate a one-year gain

in cognitive skills

BEHAVIORAL VARIABLE

in mathematics

INSTRUCTIONAL VARIABLE

as measured by the total score on the Arithmetic sub-test of the comprehensive test of Basic Skills, Form Q, Level 1.

MEASUREMENT

WRITING PERFORMANCE OBJECTIVES
COGNITIVE
Course. Program & Project Level
Mathematics

TIME — Upon completion of the school year,

INSTITUTIONAL VARIABLE — the third grade students will,

PROFICIENCY LEVEL — on the average, demonstrate a one-year gain

in the comprehension **BEHAVIORAL VARIABLE**

in mathematics concepts **INSTRUCTIONAL VARIABLE**

as measured by the Arithmetic concepts sub-tests of the Comprehensive Test of Basic Skills, Form Q, Level 1. **MEASUREMENT**

WRITING PERFORMANCE OBJECTIVES
COGNITIVE
Course, Program & Project Level
Mathematics

TIME — Upon completion of the school year,

INSTITUTIONAL VARIABLE — the third grade students will,

PROFICIENCY LEVEL — on the average, demonstrate a one-year gain

in the application

BEHAVIORAL VARIABLE

of computational skills in mathematics

INSTRUCTIONAL VARIABLE

as measured by the Arithmetic computation skills sub-tests of the comprehensive Test of Basic Skills, Form Q, Level 1.

MEASUREMENT

WRITING PERFORMANCE OBJECTIVES
COGNITIVE
Instructional Level
Mathematics

TIME — Upon completion of the unit,

INSTITUTIONAL VARIABLE — each third grade student will,

PROFICIENCY LEVEL — with 100% accuracy,

display his knowledge **BEHAVIORAL VARIABLE**

of multiplication facts **INSTRUCTIONAL VARIABLE**

by correctly naming the products in a 10 x 10 multiplication table. **MEASUREMENT**

WRITING PERFORMANCE OBJECTIVES
AFFECTIVE
Course, Program & Project Level

TIME — Upon completion of the unit,

INSTITUTIONAL VARIABLE — the third grade students will

BEHAVIORAL VARIABLE — respond positively

to mathematics problem solving exercises — **INSTRUCTIONAL VARIABLE**

as evidenced by a statistically significant (.05 level) increase between pre and post-testing — **PROFICIENCY LEVEL**

as measured by a teacher-constructed semantic differential. — **MEASUREMENT**

WRITING PERFORMANCE OBJECTIVES
AFFECTIVE
Course, Program & Project Level

TIME — Upon completion of the school year,

INSTITUTIONAL VARIABLE — the third grade students will,

PROFICIENCY LEVEL — with a 20% increase,

respond positively — **BEHAVIORAL VARIABLE**

to mathematics problem solving exercises — **INSTRUCTIONAL VARIABLE**

as measured by a teacher-constructed questionnaire. — **MEASUREMENT**

WRITING PERFORMANCE OBJECTIVES
AFFECTIVE
Instructional Level

TIME — At the conclusion of the lesson,

INSTITUTIONAL VARIABLE — the third grade students

BEHAVIORAL VARIABLE — will respond positively

to the use of blackboard drills in multiplication facts — **INSTRUCTIONAL VARIABLE**

as evidenced by 80% of the students volunteering for participation in the next lesson — **PROFICIENCY LEVEL**

as measured by teacher observation. — **MEASUREMENT**

WRITING PERFORMANCE OBJECTIVES
COGNITIVE
Curriculum Level
Reading

TIME — Upon completion of the school year,

INSTITUTIONAL VARIABLE — the third grade students will,

PROFICIENCY LEVEL — on the average, demonstrate one month's gain for each month of instruction

in cognitive skills

BEHAVIORAL VARIABLE

in reading

INSTRUCTIONAL VARIABLE

as measured by the total score on the Reading sub-tests of the Comprehensive Test of Basic Skills, Form Q, Level 1.

MEASUREMENT

WRITING PERFORMANCE OBJECTIVES
COGNITIVE
Course, Program & Project Level
Reading

TIME — Upon completion of the school year,

INSTITUTIONAL VARIABLE — the third grade students will

PROFICIENCY LEVEL — on the average, display one month's gain for each month of instruction

in comprehension

BEHAVIORAL VARIABLE

in reading

INSTRUCTIONAL VARIABLE

as measured by the Comprehension sub-test of the Comprehensive Test of Basic Skills Forms, Form Q, Level 1.

MEASUREMENT

WRITING PERFORMANCE OBJECTIVES
COGNITIVE
Course, Program & Project Level
Reading

TIME

Upon completion of the school year,

INSTITUTIONAL VARIABLE

the third grade students will

PROFICIENCY LEVEL

demonstrate a significant increase (.05 level)

in the application

BEHAVIORAL VARIABLE

of word attack skills

INSTRUCTIONAL VARIABLE

as measured by the Botel Phonics Test.

MEASUREMENT

WRITING PERFORMANCE OBJECTIVES
COGNITIVE
Instructional Level
Reading

TIME

Upon completion of the unit,

INSTITUTIONAL VARIABLE

the third grade students will,

PROFICIENCY LEVEL

with 100% accuracy,

display knowledge

BEHAVIORAL VARIABLE

of the vowels

INSTRUCTIONAL VARIABLE

as measured by identifying the vowels in a listing of the alphabet.

MEASUREMENT

WRITING PERFORMANCE OBJECTIVES
COGNITIVE
Curriculum Level

TIME — Upon completion of the school year,

INSTITUTIONAL VARIABLE — Algebra 1 students will

PROFICIENCY LEVEL — demonstrate a significant increase (.05 level)

in cognitive skills **BEHAVIORAL VARIABLE**

of selected algebraic concepts **INSTRUCTIONAL VARIABLE**

as measured by the Iowa Algebra Test. **MEASUREMENT**

WRITING PERFORMANCE OBJECTIVES
COGNITIVE
Course, Program & Project Level

TIME

Upon completion of the school year,

INSTITUTIONAL VARIABLE

Algebra 1 students will

PROFICIENCY LEVEL

demonstrate a significant increase (.05 level)

in the application

BEHAVIORAL VARIABLE

of procedures for solving linear equations

INSTRUCTIONAL VARIABLE

as measured by the Iowa Algebra Test, sub-test 2.

MEASUREMENT

UCLA

WRITING PERFORMANCE OBJECTIVES
COGNITIVE
Instructional Level

TIME — Upon completion of the unit,

INSTITUTIONAL VARIABLE — each algebra student will,

PROFICIENCY LEVEL — with 100% accuracy,

demonstrate his application **BEHAVIORAL VARIABLE**

of procedures for solving simple equations **INSTRUCTIONAL VARIABLE**

by correctly identifying the root of the equation $x + 10 = 23$. **MEASUREMENT**

WRITING PERFORMANCE OBJECTIVES
PSYCHOMOTOR
Curriculum Level

TIME — Upon completion of the Business Curriculum,

INSTITUTIONAL VARIABLE — the students will

BEHAVIORAL VARIABLE — demonstrate psychomotor skills

in the use of office machines

INSTRUCTIONAL VARIABLE

according to established standards of operating procedures for all machines

PROFICIENCY LEVEL

as measured by an office machines checklist.

MEASUREMENT

WRITING PERFORMANCE OBJECTIVES
PSYCHOMOTOR
Course, Program & Project Level

TIME

Upon completion of the course,

INSTITUTIONAL VARIABLE

the Typing I students will

BEHAVIORAL VARIABLE

have reached a level of articulation

in typing

INSTRUCTIONAL VARIABLE

to type 25 words per minute with fewer than five errors

PROFICIENCY LEVEL

as measured by a five minute speed test.

MEASUREMENT

WRITING PERFORMANCE OBJECTIVES
PSYCHOMOTOR
Instructional Level

TIME	After directed to press the letter "r" with his index finger,
INSTITUTIONAL VARIABLE	the Typing I student will
BEHAVIORAL VARIABLE	display the ability to manipulate
his index finger	
INSTRUCTIONAL VARIABLE	
by correctly typing the letter "r" ten times	
PROFICIENCY LEVEL	
as measured by teacher recorded observations.	
MEASUREMENT	

TEST 4

Identifying Levels of Specificity of Performance Objectives:

The purpose of the following exercise is to identify objectives as being most representative of a given level of specificity within the typical school program structure.

DIRECTIONS: Read each objective, identifying the level of specificity of the elements, then place your answer on the blank provided using the following key:

A. Curriculum Level

B. Course, Program, or Project Level

C. Instructional Level

Level	Objective
1.....	Upon completion of the school year, the third grade students will, on the average, demonstrate one month's gain for each month of instruction in cognitive skills in reading as measured by the total score on the reading sub-tests of the CTBS, Form Q, Level 1.
2.....	Upon completion of the unit, each third grade student will, with 100% accuracy, display his knowledge of vowels by correctly naming the vowels a,e,i,o,u.
3.....	Upon completion of the course, the Typing I students will have reached a level of articulation in typing to type twenty-five words per minute with fewer than five errors as measured by a five-minute speed test.
4.....	Upon completion of the school year, the third grade students will, on the average, display one month's gain for each month of instruction in

knowledge in reading vocabulary as measured by the vocabulary sub-test of the CTBS, Form Q, Level 1.

5..... After observing the teacher writing a "1" on the chalkboard, the first grade student will imitate this action in handwriting by correctly writing ten "1's" on a piece of paper according to Palmer's criteria found in Handbook III.

6..... Upon completion of the school year, the sixth grade students will demonstrate a significant increase (.05 level) in the application of Phonics Skills as measured by the Botel Test of Phonics Skills.

7..... Upon completion of the school year, the sixth grade students will demonstrate a significant gain (.05 level) in cognitive skills in reading as measured by the California Achievement Test.

8..... Upon completion of the school year, the fifth grade students will perform psychomotor skills in physical fitness at the fiftieth percentile on national age norms as measured by the President's Physical Fitness Test.

6..... After directed to press the letter "r" with his index finger, the Typing I student will display the ability to manipulate his index finger by correctly typing the letter "r" ten times as measured by teacher recorded observations.

10..... Upon completion of the school year, the third grade students in the Title I Program will demonstrate a significant gain (.05 level) in their comprehension of paragraph structure as measured by the sub-test of the California Reading Test.

APPENDIX A

DESCRIPTIONS OF INSTITUTIONAL AND INSTRUCTIONAL VARIABLES

INSTITUTIONAL DIMENSION

The structure classifies all people along the institutional dimension. The people variables in an educational setting are very important considerations. These variables are identified as students, teachers, administrators, specialists, families, and communities.

The variables are defined as follows:

1. The student variable can be described in terms of age, sex, achievement level, etc.

2. The teacher variable can be described in terms of grade level taught, highest degree held, number of years' experience, etc.

3. The administrator can be described as the person usually responsible for the educational program (i.e., superintendent, principal, director).

4. The specialist can be described as a person who performs a role unique only to a particular instructional setting (i.e., a curriculum coordinator, remedial reading teacher, etc.).

5. The family variable can be described as parents or legal guardians of the child, and includes brothers and sisters.

6. The community variable can be described as the P.T.A., service clubs, religious organizations, and political groups.

INSTRUCTIONAL DIMENSION

The second dimension describes the instructional variables of organization, content, method, facilities, and cost.

1. The variable of organization refers to the manner in which students are organized for learning (i.e., self-contained clasroom, departmentalized, non-graded, etc.).
2. The content variable is defined as a body of knowledge topically described (i.e., algebra, American problems, reading).
3. The method variable can be described as:
   (1) Teaching activities (i.e., lecture, inquiry, demonstration).
   (2) Type of interaction (i.e., teacher-student, student - student, student - media).
   (3) Learning principles or theories (i.e., operant conditioning, field, Gestalt).
4. The facilities variable describes equipment, space or expendables to support a given educational program (i.e., reading laboratories, language laboratories, projectors, dittos).
5. The cost variable is necessary to completely evaluate educational programs. Cost in terms of input and output should be considered (i.e., money spent in the total educational operation).

APPENDIX B

ANSWERS TO TEST ITEMS

TEST 1 (Page 8)

A. 1. C 2. A 3. A 4. B 5. C 6. A 7. B 8. B 9. A
10. A 11. B 12. B 13. C 14. A

B. Any order is correct:

(1) Time or Prerequisites Required
(2) Institutional Variable
(3) Behavioral Variable
(4) Instructional Variable
(5) Proficiency Level
(6) Measurement

TEST 2 (Page 15)

A. 1. A 2. D 3. B 4. F 5. C 6. E

B. 7. I 8. H 9. J 10. K 11. G

C. 12. O 13. L 14. P 15 M 16. N

TEST 3 (Page 18)

1. 1,2,4,5,6 2. 5,6 3. 2,6 4. 5,6 5. 5 6. 2,4
7. O.K. 8. 5 9. 2 10. 6

TEST 4 (Page 55)

1. A 2. C 3. B 4. B 5. C 6. B 7. A 8. A 9. C 10. B

APPENDIX C

PRACTICE FORMS

PRACTICE WRITING

In the space below write cognitive performance objectives at the three levels of specificity.

Curriculum Level

Course, Program, or Project Level

Instructional Level

PRACTICE WRITING

In the space below write cognitive performance objectives at the three levels of specificity.

Curriculum Level

Course, Program, or Project Level

Instructional Level

PRACTICE WRITING

In the space below write cognitive performance objectives at the three levels of specificity.

Curriculum Level

Course, Program, or Project Level

Instructional Level

PRACTICE WRITING

In the space below write cognitive performance objectives at the three levels of specificity.

Curriculum Level

Course, Program, or Project Level

Instructional Level

PRACTICE WRITING

In the space below write cognitive performance objectives at the three levels of specificity.

Curriculum Level

Course, Program, or Project Level

Instructional Level